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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,286

01/27/2006

Dong Hwal Lee

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IPLA P.A.

3580 WILSHIRE BLVD.

17TH FLOOR

LOS ANGELES, CA 90010

EXAMINER

BOR, HELENE CATHERINE

ART UNIT

PAPER NUMBER

3768

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,286	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> HELENE BOR	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/27/2007</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1-3, 5 & 9 rejected under 35 U.S.C. 102(b) as being anticipated by Metchev (US Patent No. 4,376,990).

**Claim 1-3, 5 & 9:** Metchev teaches transmitting and receiving an ultrasound pulse (Abstract). Metchev teaches amplifying the ultrasound pulse, extracting the specific frequency and converting the arrival time of into distance (Abstract, Figure 3A, Element 25, Col. 1, Line 15-18 & Col. 1, Line 63 – Col. 2, Line 3). Metchev teaches separating the specific frequency of the ultrasound pulse and converting the arrival time of the pulse which was extracted from a mixed signal (Abstract & Figure 1, Filter Stage I). Metchev teaches wherein receiving the ultrasound pulse, the receiver is a moving object (Col. 1, Line 19-21). Metchev teaches amplifying the received pulse and filtering the amplified signal to generated a filtered signal (Claim 6 & 8). Metchev teaches amplifying the signal again into a digital signal and extracting the specific frequency from the converted digital signal (Claim 6 & 8).

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US Patent Application No. 2004/0021566 A1), and further in view of Metchev (US Patent No. 4,376,990).

5. **Claim 6:** Hayashi teaches distance measurement method using ultrasonic (abstract). Hayashi teaches installing a first receiver for receiving an ultrasonic at a known position (Figure 17, Element 31a). Hayashi teaches installing a second receiver for receiving an ultrasonic at an object to be measured (Figure 17, Element 31b). Hayashi teaches transmitting an ultrasonic having a specific frequency from a location where a distance from the object will be measured, to the first and second receivers (Page 11, Para 172-173). Hayashi teaches extracting specific frequencies of the ultrasonic received from the first and second receivers to find an arrival time of a first signal and converting the time into a distance (Page 11, Para 168-169). Hayashi teaches transmitting error information related to a difference between the distance received by the first receiver and the known distance to the second receiver; and allowing the second receiver to correct the velocity of sound using the error information (Page 11, Para 178-179 & Page 12, Para 0194). Hayashi fails to teach the amplification of the signal, however, Motchev teaches using amplification on the signal to improve signal/noise ratio (Col 2, Line 40-41 & Col. 3, Line 1-9). It would have been obvious to one of ordinary skill in the art to modify the system of Hayashi to include the amplification as taught by Motchev in order to improve signal/noise ratio (Col 2, Line 40-41).

6. Claim 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US Patent Application No. 2004/0021566 A1) and further in view of Hirose (US Patent No. 6,672,162 B2).

**Claim 7-8:** Hayashi teaches a distance measurement device using ultrasonic (Abstract). Hayashi teaches a transmitter configured to generate and transmit an ultrasonic having a specific frequency (Figure 21, Element 23). Hayashi teaches a sensor for configured to receive the ultrasonic reflected from an object (Figure 21, Element 33). Hayashi teaches a digital signal processor configured to process the digital data stored in the memory (Figure 21, Element 32). Hayashi teaches an output unit (Figure 20, Element 3a) configured to display results processed in the digital signal processor. Hayashi teaches a numerical input unit configured to inform the digital signal processor of a processing condition (Figure 20, Element 3a). Hayashi teaches a communication unit (Figure 20, Element 2) configured to connect the digital signal processor (Figure 21, Element 32) and an external apparatus (Figure 20, Element 12) to each other so that the digital signal processor and the external apparatus can exchange information. Hayashi teaches a transmission time of a first signal among the received ultrasonic and a delayed time of the first signal is measured based on the transmission time and an arrival time of the first signal calculated in the digital signal processor are measured (Page 12, Para 0193-194). Hayashi fails to teach the details of amplifying and filtering of the signal. However, Hirose teaches an amplifier for amplifying the ultrasonic detected by the sensor (Figure 1, Element 4a). Hirose teaches an analog filter configured to selectively attenuate other frequencies except for a specific

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frequency from the ultrasonic amplified by the amplifier (Figure 1, 4b). Hirose teaches a secondary amplifier for amplifying an analog signal selected through the analog filter (Figure 1, Element 4d & 4f & Col. 3, Line 66 – Col. 4, Line 6). Hirose teaches an A/D converter for converting the amplified analog signal to a digital data (Figure 1, Element 4c) and a memory for storing the digital data therein (Figure 1, Element 4e). It would have been obvious to one of ordinary skill in the art to combine the teachings of Hayashi and Hirose in order to decrease processing time and increase processing speed (Col. 4, Line 6-15).

### ***Response to Arguments***

7. Applicant's arguments, see Page 8, filed 11/27/2007, with respect to the Information Disclosure Statement (IDS), the Specification and the Drawings have been fully considered and are persuasive. The objections of IDS, the Specification and the Drawings have been withdrawn.

8. Applicant's arguments with respect to claim 11/27/2007 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE BOR whose telephone number is (571)272-2947. The examiner can normally be reached on M-T 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./  
Examiner, Art Unit 3768

/Eric F Winakur/  
Primary Examiner, Art Unit 3768